

Abstract Submitted  
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**A study of electrophoretic deposition (EPD) of carbon nanotubes on insulator substrates**<sup>1</sup> JARED DESOTO, ANIRBAN SARKAR, THEDA DANIELS-RACE, Division of Electrical and Computer Engineering, School of Electrical Engineering and Computer Science, Louisiana State University — Since the discovery of carbon nanotubes (Ijima, 1991) and isolation of graphene (Geim and Novoselov, 2003), there has been enormous interest toward the incorporation of these novel nanomaterials in electronic device applications. To this end, a wide array of economical coating strategies have been proposed, e.g. Langmuir Blodgett (LB) method, drop casting, spray and dip coating, ink jet printing, to name a few. Recently, electrophoretic deposition (EPD) has gained substantial attention as a versatile technique for the deposition of uniform coatings of micro/nanoparticles on predominantly conducting substrates or films atop insulating surfaces and substrates with open pores. In this study, we have successfully performed, for the first time, EPD of acid-refluxed CNTs on glass and plastic (polyimide) substrates. The deposition was accomplished on an initial, semi-transparent layer of drop-casted CNTs on hydrophilic, APTES treated glass substrates. To the best of our knowledge, thus far there exists no report of demonstration of EPD of CNTs on insulator substrates by utilizing the conducting properties of the CNTs. This exciting development is believed to significantly contribute to EPD coated CNT thin film transistor technology where uniform CNT coatings on dielectric films of  $\text{Al}_2\text{O}_3$ ,  $\text{SiO}_2$  are desired as the active semiconducting layer.

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